

**What is claimed is:**

- 1           1.       A method of disintegrating biofilm, flocculent bulked sludge or bulked  
2       biologically active sludge in an aqueous system, which comprises adding to or  
3       forming in said aqueous medium containing biofilm, flocculent bulked sludge or  
4       bulked biologically active sludge one or more chlorinated hydantoins in an amount  
5       sufficient to form a concentration of from about 0.01 to 100 ppm (expressed as Cl<sub>2</sub>) of  
6       such chlorinated hydantoins in said aqueous medium.
- 1           2.       The method of claim 1, wherein the chlorinated hydantoin is  
2       monochlorodialkylhydantoin, dichlorodialkylhydantoin or a mixture thereof, wherein  
3       the alkyl group contains from 1 to 6 carbon atoms.
- 1           3.       The method of claim 2, wherein the chlorinated hydantoin is  
2       monochlorodimethylhydantoin, dichlorodimethylhydantoin, or a mixture thereof.
- 1           4.       The method of claim 1, wherein the chlorinated hydantoin is added to  
2       the aqueous medium as a solution or an aqueous slurry.
- 1           5        The method of claim 1, wherein the chlorinated hydantoin is added to  
2       the aqueous medium as a solid.
- 1           6        The method of claim 1, wherein the treated aqueous medium is  
2       exposed to sunlight.
- 1           7        The method of claim 1, wherein the chlorinated hydantoin is formed *in*  
2       *situ* by adding to the aqueous medium chlorine from a chlorine source and an  
3       alkylated hydantoin in a molar ratio of chlorine to alkylated hydantoin of from 1:100  
4       to 100:1.
- 1           8.       The method of claim 7, wherein the molar ratio of chlorine to alkylated  
2       hydantoin of from 1:10 to 10:1.
- 1           9.       The method of claim 1, wherein the aqueous medium contains biofilm  
2       adhering to a substrate.

1           10.    The method of claim 1, wherein the chlorinated hydantoin is added  
2   with performance additives.

1           11.    The method of claim 10, wherein the performance additives are  
2   dispersants, biodispersants, scale control agents, corrosion inhibitors, surfactants,  
3   biocides, cleaning agents, and mixtures thereof.

1           12.    The method of claim 1, wherein the aqueous system is a cooling water  
2   system, a pulping or papermaking system, an air washer system, an agricultural  
3   potable and drainage system, a food preparation or cleaning system, an oil industry  
4   system, a potable water system, a household water-related system, or an institutional  
5   water-related system.

1           13.    A method of removing biofilm from a substrate in an aqueous medium  
2   which comprises: adding to or forming in said aqueous medium  
3   monochlorodimethylhydantoin, dichlorodimethylhydantoin, or a mixture thereof in an  
4   amount of from about 0.05 to 25 ppm (expressed as  $\text{Cl}_2$ ) of such chlorinated  
5   hydantoins.

1           14    The method of claim 13, wherein the chlorinated dimethylhydantoin is  
2   formed *in situ* by adding to the aqueous medium chlorine from a chlorine source and  
3   dimethylhydantoin in a molar ratio of chlorine to dimethylhydantoin of from 1:10 to  
4   10:1.

1           15.    The method of claim 14, wherein the chlorine source is sodium  
2   hypochlorite or gaseous chlorine.

1           16.    A method of disintegrating flocculent bulked sludge or bulked  
2   biologically active sludge present in an aqueous medium which comprises: adding to  
3   or forming in said aqueous medium monochlorodimethylhydantoin,  
4   dichlorodimethylhydantoin, or a mixture thereof in an amount of from about 0.05 to  
5   25 ppm (expressed as  $\text{Cl}_2$ ) of such chlorinated hydantoins.

1           17     The method of claim 16, wherein the chlorinated dimethylhydantoin is  
2     formed *in situ* by adding to the aqueous medium chlorine from a chlorine source and  
3     dimethylhydantoin in a molar ratio of chlorine to dimethylhydantoin of from 1:10 to  
4     10:1.

1           18.     The method of claim 17, wherein the chlorine source is sodium  
2     hypochlorite or gaseous chlorine.